

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application) PATENT APPLICATION
Inventors: William F. Leek et al.)
Application No.: 10/734,870) Art Unit: 3633
Filed: December 12, 2003) Examiner: Chapman, E.J.
Title: CORRUGATED SHEARWALL) Customer No. 28554

)

RESPONSE TO OFFICE ACTION UNDER 37 C.F.R. § 1.111

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This RESPONSE is in reply to the Office Action mailed June 24, 2008.

AMENDMENTS TO THE SPECIFICATION begin on Page 2 of this Amendment.

AMENDMENTS TO THE CLAIMS begin on Page 3 of this Amendment.

REMARKS begin on Page 8 of this Amendment.

AMENDMENTS TO THE SPECIFICATION

At page 2, please amend paragraph 4 as follows:

[0004] A conventional prefabricated shearwall 20 is shown in the perspective and cross-sectional views in Figs. 1 and 2. The shearwall includes an interior diaphragm 22 formed of thin gauge sheet steel which is affixed to an exterior wooden frame 24 (not shown). The diaphragm is conventionally planar with the edges along the length of the diaphragm being formed to respective lips 26 and 28. The lips 26, 28 allow the diaphragm to be affixed to the wooden frame.

AMENDMENTS TO THE CLAIMS

This listing of claim will replace all prior versions and listings of claim in the application.

1. – 10. (cancelled)

11. (currently amended) A shearwall, comprising:

a central diaphragm, including:

a top edge and a bottom edge generally defining a height of said central diaphragm, first and second ends, extending between the top and bottom edges, generally defining a width of said central diaphragm, and

a corrugated section extending at least partially between said top edge and said bottom edge in between said first and second ends, said corrugated section forming at least one corrugation, said at least one corrugation extending from said bottom edge and terminating at a position between said bottom edge and said top edge.

12. – 13. (cancelled)

14. (previously presented) A shearwall, comprising:

a central diaphragm, including

a top edge and a bottom edge generally defining a height of said central diaphragm, first and second ends, extending between the top and bottom edges, generally defining a width of said central diaphragm,

a corrugated section extending at least partially between said top edge and said bottom edge in between said first and second ends, said corrugated section forming at least one corrugation; and

at least one embossment.

15. (previously presented) A shearwall, comprising:

a central diaphragm, including

a top edge and a bottom edge generally defining a height of said central diaphragm,

first and second ends, extending between the top and bottom edges, generally defining a width of said central diaphragm,
a corrugated section extending at least partially between said top edge and said bottom edge in between said first and second ends, said corrugated section forming at least one corrugation; and
at least one stiffening lip.

16. (cancelled)
17. (previously presented) A shearwall, comprising

a central diaphragm having a height, width and depth, each being perpendicular to each other, and a corrugation extending in the direction of said height of said central diaphragm;
first and second chords affixed to said central diaphragm at opposed edges of said central diaphragm and extending in the direction of said height of said central diaphragm;
a sill plate affixed to a bottom of the shearwall, said sill plate having a footprint at least as large as said central diaphragm and said first and second chords together; and
a channel in which said central diaphragm resides.
18. (original) A shearwall as recited in claim 17, said sill plate having a width greater than that of said channel.
19. -24. (cancelled)
25. (previously presented) A shearwall ~~as recited in claim 24, further~~ comprising:

a central diaphragm having a top edge and a bottom edge defining a height of said central diaphragm, first and second end sections defining a width of the central diaphragm, and a front plane and a rear plane defining a depth of said central diaphragm, said central diaphragm including:
a pair of rear planar sections extending at least part way between said top and bottom edges and being adjacent, respectively, to said first and second end sections, said pair of rear planar sections having a surface residing generally in said rear plane,
a pair of angled sections extending at least part way between said top and bottom

edges and being adjacent, respectively, to said pair of rear planar sections, said pair of angled sections extending from said rear plane toward said front plane and angling toward each other,

a front planar section extending at least part way between said top and bottom edges and being adjacent said pair of angled sections, said front planar section having a surface residing generally in said front plane; and

first and second chords affixed one each to said first and second end sections.

26. – 36 (canceled)

37. (currently amended) A shearwall comprising:

a first member extending in the length direction between a top and bottom of the shearwall, the first member including at least a first corrugation;

a second member extending in the length direction between the top and bottom of the shearwall, the second member including at least a second corrugation; and

a central section of variable width ~~in a direction transverse to~~ along the length direction of the shearwall for affixing the first member to the second member, the central section welded to the first and second members.

38. (previously presented) A shearwall comprising:

a central diaphragm having a top edge and a bottom edge defining a height of said central diaphragm, first and second end sections defining a width of the central diaphragm, and a front plane and a rear plane defining a depth of said central diaphragm, said central diaphragm including:

a pair of rear planar sections extending at least part way between said top and bottom edges and being adjacent, respectively, to said first and second end sections, said pair of rear planar sections having a surface residing generally in said rear plane,

a pair of angled sections extending at least part way between said top and bottom edges and being adjacent, respectively, to said pair of rear planar sections, said pair of angled sections extending from said rear plane toward said front plane and angling toward each other,

a front planar section extending at least part way between said top and bottom edges

and being adjacent said pair of angled sections, said front planar section having a surface residing generally in said front plane;

first and second side structural members formed one each on said first and second end sections; and

first and second edge structural members formed one each on said top edge and a bottom edge.

39. (previously presented) A shearwall as recited in claim 38, wherein the first and second structural members are chords.

40. (previously presented) A shearwall as recited in claim 38, wherein the one of the first or second edge structural members sits within a channel.

41. (previously presented) A shearwall as recited in claim 40, wherein the channel is mounted to a sill plate.

42. (currently amended) A shearwall comprising:

a first member extending in the length direction between a top and bottom of the shearwall;

a second member extending in the length direction between the top and bottom of the shearwall;

a central diaphragm welded to the first and second members, the central ~~diaphragm~~ diaphragm having a top edge and a bottom edge defining a height of said central diaphragm, first and second end sections defining a width of the central diaphragm, and a front plane and a rear plane defining a depth of said central diaphragm, said central diaphragm including:

a pair of rear planar sections extending at least part way between said top and bottom edges and being adjacent, respectively, to said first and second end sections, said pair of rear planar sections having a surface residing generally in said rear plane,

a pair of angled sections extending at least part way between said top and bottom edges and being adjacent, respectively, to said pair of rear planar sections, said pair of angled sections extending from said rear plane toward said front plane and angling toward each other,

a front planar section extending at least part way between said top and bottom edges and being adjacent said pair of angled sections, said front planar section having a surface residing generally in said front plane;

wherein the central diaphragm is

~~first and second side structural members formed one each on said first and second end sections; and~~

~~first and second edge structural members formed one each on said top edge and a bottom edge.~~

REMARKS

The above amendments and these Remarks are in reply to the Office action dated June 4, 2007. With the cancellation of claims 1-10, 12-13, 16, 19-24 and 26-36, claims 11, 14-15, 17-18, 25 and 37-42 are presented for consideration.

Rejection of Claim 11 Under 35 U.S.C. §102(b)

Claim 11 is rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,619,837 to DiSanto (hereinafter “DiSanto”). Applicants respectfully traverse as follows.

DiSanto discloses a panel structure where a corrugated panel 12 is pinned to top and bottom caps 24, 26 via elongated rods 28 and 30. As seen for example in Figs. 1, 2, 4 and 5, the top cap 24 has a “W”-shaped cross-section including a central channel 32. The channel 32 extends downward toward the corrugated panel 12. Thus, when top cap 24 is placed on the corrugated panel 12, the rod 28 may be inserted through holes 50 in the corrugated panel 12 and lie within central channel 32 to hold the top cap 24 to panel 12. Similarly, the bottom cap 26 has a W-shaped cross-section including a central channel 36. The channel 36 extends upward toward the corrugated panel 12. Thus, when bottom cap 26 is placed on the corrugated panel 12, the rod 30 may be inserted through holes 64 in the corrugated panel 12 and lie within central channel 36 to hold the bottom cap 26 to panel 12.

The top and bottom caps 24, 26 further include diagonally formed slots 34, 38, respectively. These slots allow the caps to fit over the corrugated panel 12. Without the slots, the W-shape of the caps would prevent them from fitting over the corrugated panel 12.

Claim 11 recites in part:

a corrugated section **extending partially between said top edge and said bottom edge** in between said first and second ends, said corrugated section forming at least one corrugation, said at least one corrugation extending from said bottom edge and **terminating at a position between said bottom edge and said top edge**. (Emphasis added).

This feature is shown for example in Figs. 13-16. In particular, the claim recites a shearwall where the corrugation extends only part way along the length of the shearwall. This feature is not shown or suggested in DiSanto. In fact, in DiSanto, the corrugation must extend to both the bottom and top edges, as the angled portions of the corrugations receive the rods 28 and 30 to fasten the top and bottom caps onto the panel 12. Without a corrugation at the top edge, the panel 12 would be incapable of receiving the pin 28, and

consequently, there would be no way to fasten the top cap 24 to the panel 12.

Based on this feature, it is respectfully submitted that claim 11 is patentable over DiSanto, and it is respectfully requested that the rejection on these grounds be withdrawn.

Rejection of Claims 14-15 and 25 Under 35 U.S.C. §102(b)

Claims 14-15 and 25 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,726,166 to DeRees (hereinafter “DeRees”). Applicants respectfully traverse as follows.

Each of claims 14-15 and 25 expressly recite a shearwall. The Examiner has alleged that DeRees discloses a shearwall. Applicants respectfully disagree. As is well-known to those skilled in the art, a shearwall is used in constructing a building to resist wind and seismic loads transverse to the forces of gravity. DeRees has no disclosure, teaching or suggestion of any kind of a shearwall. The structure in DeRees is a beam to support the variety of forces exerted on an automobile. As stated in the Field of the Present Invention at col. 1, lines 6-10 of DeRees:

The present invention relates generally to structural support rails, and more particularly, to a novel, elongated beam having an internal web and a high strength-to-weight ratio which is especially advantageous for incorporation in the construction of a motor vehicle underbody.

In order to anticipate a claimed invention, a prior art reference must disclose each and every limitation found in the claims, either expressly or inherently. *Rockwell Intern. Corp. v. U.S.*, 147 F.3d 1358, 1363 (Fed. Cir. 1998); *Electro Med. Sys. S.A. v. Cooper Life Sciences*, 34 F.3d 1048, 1052 (Fed. Cir. 1994). Omission of any claimed element, no matter how insubstantial, is grounds for traversing a rejection based on §102. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542 (Fed. Cir. 1983). As DeRees fails to disclose a shearwall, and does not relate to a shearwall in any way, it is respectfully submitted that claims 14-15 and 25 are patentable over DeRees, and it is respectfully requested that the rejection of claims 14-15 and 25 on these ground be withdrawn.

Rejection of Claims 17 and 18 Under 35 U.S.C. §102(b)

Claims 17 and 18 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,568,388 to Flachbarth (hereinafter “Flachbarth”). Applicants respectfully traverse as follows.

Claims 17 and 18 recite in part:

first and second chords affixed to said central diaphragm at opposed edges of said central diaphragm and extending in the direction of said height of said central diaphragm.

The present application describes the recited chords at paragraphs 46 and 47:

In embodiments of the present invention, the shearwall 100 may further include a pair of reinforcing chords 120 and 122 affixed to the end sections 104 and 106, respectively. The chords may be formed of wood, such as for example sawn lumber from lumber groups including spruce-pine-fir, Douglas fir-larch, hem-fir and southern pine. The chords 120, 122 may alternatively be formed of engineered lumber, such as glulam and wood composites. Other types of wood are contemplated... Various affixing mechanisms may be used to affix the chords to the central diaphragm, such as for example a plurality of $\frac{1}{4}$ inch x $1\frac{1}{2}$ inch Simpson Strong-Drive® screws. Other types of screws and affixation methods are contemplated....

Affixation of the chords to the central diaphragm as described above further improves the resistance of shearwall 100 to lateral forces.

Flachbarth has no disclosure of the recited chords. The Examiner indicated that Flachbarth shows chords 60 and 62. However, elements 60 and 62 are simply ends of each panel section 1, and are integrally formed with panel 1. The ends 60 and 62 are bent to form ribs, so that the rib 60 of a first panel may receive a rib 62 of a second panel to join the two panels together. The locking ribs 60 and 62 are not chords as recited in the present invention.

As noted above, in order to anticipate a claimed invention, a prior art reference must disclose each and every limitation found in the claims, either expressly or inherently. *Rockwell Intern. Corp. v. U.S.*, 147 F.3d 1358, 1363 (Fed. Cir. 1998); *Electro Med. Sys. S.A. v. Cooper Life Sciences*, 34 F.3d 1048, 1052 (Fed. Cir. 1994). Omission of any claimed element, no matter how insubstantial, is grounds for traversing a rejection based on §102. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542 (Fed. Cir. 1983). As Flachbarth fails to disclose the recited chords, it is respectfully submitted that claims 17 and 18 are patentable over Flachbarth, and it is respectfully requested that the rejection of claims 17 and 18 on these ground be withdrawn.

Rejection of Claim 42 Under 35 U.S.C. §102(b)

Claim 42 is rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,300,926 to Heirich (hereinafter “Heirich”). Applicants respectfully traverse as follows.

Claim 42, both before and after amendment, recites in part:

a front **planar** section extending between said top and bottom edges and being adjacent said pair of angled sections, said front planar section having a surface residing generally in said front plane. (Emphasis added).

The Examiner indicated that this limitation was met by section 17 of Heirich. However, as is clear from Figs. 1 and 2, section 17 of Heirich is not planar. Heirich itself describes section 17 as being “arched or curved.” (col. 3, line 12). As section 17 is not planar, Heirich cannot anticipate the invention recited in claim 17. It is therefore respectfully requested that the rejection of claim 17 on section 102(b) grounds be withdrawn.

Rejection of Claim 37 Under 35 U.S.C. §103(a)

Claim 37 is rejected under 35 U.S.C. §103(a) as being obvious over Heirich in view of U.S. Patent No. 4,292,782 to Schaeffer (hereinafter “Schaeffer”). Applicants have clarified claim 37 as follows.

Claim 37, as amended, recites in part:

a central section **of variable width along the length direction of the shearwall** for affixing the first member to the second member. (Emphasis added).

This embodiment is shown in the present invention for example in Figs. 7-10, where the width of the central section decreases from bottom to top; Fig. 11, where the width of the central section increases from bottom to top; Fig. 12 where the sidewalls are tight against the central section; and in Figs. 13-16, where the width of the central section decreases from bottom to top and terminates between the bottom and top.

None of these embodiments are disclosed or suggested in Heirich or Schaeffer, taken alone or in combination with each other. The Examiner said that Heirich shows element 14 having a variable width. Applicants respectfully disagree. In any event, applicants have amended claim 37 to more clearly define in which dimension the central section has a variable width. The width of all portions of panel 14 in Heirich are constant in the length direction from the bottom of the panel 14 to the top of the panel 14.

Based on the clarification to claim 37, it is respectfully submitted that claim 37 is patentable over the cited references, taken alone or in combination with each other. It is therefore respectfully requested that the rejection of claim 37 on section 103 grounds be withdrawn.

Rejection of Claims 38-39 Under 35 U.S.C. §103(a)

Claim 38-39 are rejected under 35 U.S.C. §103(a) as being obvious over DeRees in view of U.S. Patent No. 4,736,566 to Krotsch (hereinafter “Krotsch”). Applicants respectfully traverse as follows.

As discussed above, DeRees does not disclose or relate in any way to a shearwall. Krotsch adds nothing to the teaching of DeRees in this regard. Namely, Krotsch does not disclose a shearwall. As shown for example in Figs. 1 and 2, the corrugations of Krotsch are horizontally oriented, and incapable of withstanding shear loads. Similarly, in Fig. 3 of Krotsch, a middle portion of the central section is removed entirely. Again, such a design would be ineffective at withstanding shear loads.

As neither reference discloses or in any way suggests a shearwall, it is respectfully submitted that claims 38-39, specifically directed to shearwalls, are patentable over the cited references, taken alone or in combination with each other. It is therefore respectfully requested that the rejection of claims 38-39 on section 103 grounds be withdrawn.

Rejection of Claims 40-41 Under 35 U.S.C. §103(a)

Claim 40-41 are rejected under 35 U.S.C. §103(a) as being obvious over DeRees in view of U.S. Krotsch, and further in view of Flachbarth. Claims 40 and 41 are directly or indirectly dependent on claim 38. As discussed above, claim 38 is patentable over the combination of DeRees and Krotsch. It is respectfully submitted that claims 40 and 41 are patentable over the cited references at least for the grounds set forth above. Namely, the combination of cited references fail to disclose or in any way suggest a shearwall. Flachbarth adds nothing to the teachings of the references in this regard.

As none of the cited reference discloses or in any way suggests a shearwall, it is respectfully submitted that claims 40-41, specifically directed to shearwalls, are patentable over the cited references, taken alone or in combination with each other. It is therefore respectfully requested that the rejection of claims 40-41 on section 103 grounds be withdrawn.

Based on the above amendments and these remarks, it is respectfully requested that the remaining claims in the application pass to issue.

Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: December 23, 2008

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